In the Claims

1. (Original) A method of diagnostic imaging comprising the steps of:

acquiring a first set of TCT data from a first portion of a measurement surface;

determining a second set of TCT data from the first set of TCT data for a second portion of the measurement surface different from the first portion; and

reconstructing an image of the imaging object based on the first set and the second set of TCT data.

2. (Original) The method of claim 1 wherein the step of determining includes the step of extrapolating the second set of TCT data from the first set of TCT data.

3. (Canceled)

4. (Original) The method of claim 1 further comprising the step of supplementing the first set of data with the second set of TCT data such that shading in an image of the portion of the imaging object is reduced.

5. (Original) The method of claim 1 further comprising the step of impulsively in time, uniformly in space applying RF energy to the imaging object to induce thermal expansion of the imaging object for TCT data acquisition.

6. (Original) The method of claim 1 further comprising the step of periodically in time & uniformly in space applying RF energy to the imaging object to induce thermal expansion of the imaging object for TCT data acquisition.

7. (Original) The method of claim 1 further comprising the step of impulsively in time & selectively in space applying RF energy to the imaging object to induce thermal expansion of the imaging object for TCT data acquisition.

8. (Original) The method of claim 1 further comprising the step of periodically in time & selectively in space applying RF energy to the imaging object to induce thermal expansion of the imaging object for TCT data acquisition.

9. (Original) The method of claim 1 further comprising the step of acquiring the first set of TCT data from a plurality ultrasonic transducers positioned in proximity to the imaging object.

10. (Original) The method of claim 9 further comprising the step of expanding TCT data for each transducer into a representative polynomial and using coefficients of the representative polynomial to determine the second set of TCT data.

11. (Original) The method of claim 10 wherein the representative polynomial includes a Legendre polynomial.

12. (Original) The method of claim 11 further comprising the step of determining the second set of TCT data from coefficients of even terms of the Legendre polynomial.

13. (Currently Amended) A TCT imaging system comprising:

an energy source configured to apply energy to an imaging object to induce thermal expansion in the imaging object;

one or more sensors positioned at one or more respective positions and configured to acquire ultrasonic data from the imaging object caused by RF energy-induced thermal expansion in the imaging object; and

a computer programmed to derive, from the acquired data, unacquired data for the imaging object for one or more inadmissible sensor positions.

14. (Original) The TCT imaging system of claim 13 wherein the computer is further programmed to derive the unacquired data by evaluating coefficients of a polynomial expression of the acquired data.

15. (Original) The TCT imaging system of claim 14 wherein the computer is further programmed to determine the polynomial expression relative to sensor position about the imaging object.

16. (Previously Presented) The TCT imaging system of claim 13 wherein the energy to induce thermal expansion includes RF energy, infrared energy, and near-infrared energy.

17. (Original) The TCT imaging system of claim 16 configured to determine abnormality presence in breast tissue.

18. (Original) The TCT imaging system of claim 17 further comprising a hemispherical shaped imaging tank having a fluid disposed therein, the fluid having dielectric and ultrasonic properties similar to that of breast tissue.

19. (Original) The TCT imaging system of claim 18 wherein the one or more sensors are placed along an external surface of the hemispherical shaped tank.

20. (Original) A computer readable storage medium having a computer program stored thereon and representing a set of instructions that when executed by a computer causes the computer to:

determine coefficients of a polynomial expression that is relative to a position of a transducer about an imaging object;

acquire TCT data from the imaging object; and

from the coefficients, determine TCT data corresponding to a desirable transducer location about the imaging object not having a transducer location.

21. (Original) The computer readable storage medium of claim 20 wherein the set of instructions further causes the computer to impose consistency conditions on acquired TCT data such that coefficients of even terms of the polynomial expression are evaluatable to determine TCT data corresponding to the desirable transducer locations.

22. (Original) The computer readable storage medium of claim 20 wherein the set of instructions further causes the computer to reduce partial scan artifacts in acquired TCT data.

23. (Original) The computer readable storage medium of claim 20 wherein the polynomial expression is a Legendre polynomial.

24. (Currently Amended) A method of imaging a breast comprising the steps of:

projecting high frequency energy toward a breast to induce thermal expansion of tissue in the breast;

receiving ultrasonic emissions at a first set of transducer locations from a first portion of the breast resulting from the thermal expansion;

generating a first TCT dataset from the ultrasonic emissions; and

deriving a second TCT dataset from the first TCT dataset, the second TCT dataset including data for transducer locations different from the first set of transducer locations.

25. (Original) The method of claim 24 wherein the second TCT dataset corresponds to a second portion of the breast from which ultrasonic emissions were not directly received.

26. (Original) The method of claim 24 wherein the high frequency energy includes one of RF, infrared, and near-infrared energy.